

## Data Processing in Two Dimensions

- Zero Filling is Very Important to Smooth Data
  - Bruker Parameter **si** is Final Data Size
  - Number of Points in Row or Column is Increased from **td/2** to **si**
  - Typical 2D Matrix Size:  $si(F_2)=2048$ ;  $si(F_1)=1024$
- Window (Multiplier) Function Must Be Used to Smooth End of FID
  - Abrupt End of FID (“Truncation”) Leads to “Wiggles” in Baseline Around Crosspeaks
  - Sine Function Comes Smoothly to Zero at  $180^\circ$  Point
  - Start Point of Sine Function Typically  $90^\circ$  (Maximum): “ $90^\circ$ -Shifted Sine-Bell”
  - For Strong Resolution Enhancement, Start Sine Function at  $0^\circ$ : “Unshifted Sine-Bell”
- Phase Correction in Two Dimensions
  - Phase Error in  $F_2$  Leads to Horizontal “Streaks”
  - Phase Error in  $F_1$  Leads to Vertical “Streaks”
  - A Single 1D Slice (Row or Column) Typically Has Only One Peak: Cannot Set Both **PHC0** and **PHC1**
  - Bruker Allows Simultaneous Display of Three Slices (3 Rows or 3 Columns) for Phase Adjustment
  - Phase Correction is Applied to All Rows (or All Columns)